Middle-East Journal of Scientific Research 21 (9): 1460-1465, 2014
ISSN 1990-9233

DOI: 10.5829/idosi.mejsr.2014.21.09.84255

Environmental Health Challenges of Kermanshah Province During 13 Years Period (2000-2012)

[1]Moradi Masoud, [2]Fazelzadehdavil Mehdi, [3]Meghdad Pirsaheb and [3]Sharafi Kiomars

[1]Department of Environmental Health Engineering, School of Public Health,
Iran University of Medical Sciences, Tehran,
And Member of Social Development and Health Promotion Research Center,
Kermanshah University of Medical Sciences,Kermanshah, Iran
[2]Public Health School, Ardabil University of Medical Sciences, Ardabil, Iran
[3]Public Health School, Kermanshah University of Medical Sciences, Kermanshah, Iran

Abstract: Recognition of the environmental health challenges is necessary to achieve a healthy environment. So in this study, the major activities of the environmental health study conducted in Kermanshah Province, in accordance with criteria adopted by the country during the period of 13 years (2000 -2012) were studied. This is a descriptive-analytical study. Information required during the course of 13 years (2000 -2012) in the form of a new system of statistics 1, 2 and 3 to 110 different levels of urban and rural health centers were collected, resulting data were analyzed using Excel and SPSS software. Results showed that during the 13 years studied, the desirability of environmental health indexes of Kermanshah Province has been enhanced approximately. But exception of hospital indexes, there are significant differences between cities and villages in terms of desirability of these indexes. According to the results, it can be said that status of environmental health challenges are improper overall of province. Therefore, to improve of health indexes (reduce of undesirable challenges) requires provide and implementation of comprehensive and systematic program and public education as an important tool in the promotion of health indexes to be institutionalize.

Key words: Environmental Health Challenges · Kermanshah Provinc

INTRODUCTION

Healthy life thanks to a healthy environment in the community and workplace and lack of attention to environmental health issues and unsanitary disposal of pollutants such as solid wastes, industrial and municipal sewage, abuse of pesticides can cause many problems [1]. To achieve a healthy environment, understanding the environmental health challenges is essential. Determination of health indexes is one way to understanding of these challenges. Because the indexes are essential measurement criteria, vital signs and represents the situation of society. In fact, indexes are information that indicates n status of great cities. These data are representative of the entire image of community that shows where the system goes, improving or deteriorating, or the constant and unchanged [2]. The health indexes are important, WHO has defined health indexes: a quantitative or qualitative measure of the magnitude or nature of the health factor or risk factor [3]. Environmental health indexes are the most important health indexes, According to the World Health Organization; environmental health is the controlling of Environmental factors that impact of welfare and physical health, psychological and social of humans. These factors include activities and city services such as natural resources usage, energy and water consumption, waste generation and disposal. In Another definition, environmental health is the controlling of environmental factors that influence disease transmission

Corresponding Author: Sharafi Kiomars, Public Health School, Kermanshah University of Medical Sciences, Kermanshah, Iran. Tel: +091837856151.

chain. These factors include water, wastewater, wastes, sanitation facilities, weather, insect and rodent control, occupational health, uses of disinfectants, health education, and etc [4, 5]. With respect of these factors that environmental health challenges are most important, so sanitation of environment is essential for controlling of these factors. Because many of diseases with a variety of chemical and biological agents through air, water, food and many other environmental threats to human health. National Foundation of sanitation in the United States has defined sanitation as way to healthy living. Also WHO has stated sanitaion is fight against all of the improvements to the physical environment of man that has adverse effects on physical growth, health and survival [1]. Given that the mission of environmental health is to identify and control of the harmful environmental factors, so the supply of safe drinking water and food, hospitals, clinics and schools sanitary, overseeing of the ionizing radiation work centers, the fight against rodents in terms of reduced abundance and environment sanitation perspective, monitoring the collection and disposal of garbage and animal wastes, attraction of people's participation with government part in sanitation of rural environment and etc are the main challenge in environmental health, Therefore, in this study using survey of health indexes in accordance with the criteria adopted by the country during the 13 years (2000-2012), the situation of above challenges and solutions to existing problems were studied.

MATERIALS AND METHODS

This is descriptive-analytical study. The society of considered study include total of villages and cities of Kermanshah Province in terms of hygienic and sanitary condition of the villages, ionizing radiation centers in medical, hospitals and health centers, provide and distribution of food and public places.

The information about main environmental health activities carried out in Kermanshah Province were collected from the underneath level of rural-urban, urban and province health centers in statistic forms of new system as 1, 2 and 110-1 forms that were in accordance with the approval indexes of country (Iran) in the during recent 13 years past (2000-2012). Finally, after the classification of information given the aims of study, data were analyzed using the Excel and SPSS software.

RESULTS AND DISCUSSION

Tables 1 and 2 shows the desirability of hospital's environmental health indexes of cities and environmental health indexes of rural of Kermanshah Province during the 2000-2012 years respectively. Table 3 show environmental health indexes related to provide and distribution centers in Kermanshah Province with separation of village and city during the 2000-2012 years.

Table 1: Desirability percent of hospital's environmental health indexes of cities of Kermanshah Province during 2000 – 2012 years.

	index			
city	frequency of hospitals with sanitary collection and disposal	frequency of hospitals with solid waste collection system	frequency of hospitals with sanitary kitchen	frequency of hospitals with sanitary laundry
Eslamabad	100	100	100	100
Paveh	100	100	100	100
Salac-e-babajani--	-	-		
Ravansar	-	-	-	-
Javanroud	85	85	92	92
Sarpol – e- zahab	100	100	100	100
Sonqur	100	100	95	85
Harsin	30	47	100	60
Dallahoo	-	-	-	-
Sahneh	50	37	80	50
Qasr-e-shirin	100	100	100	100
Kermanshah	100	100	3/92	100
Kengavar	50	80	90	90
Gillan-e-gharb	100	100	100	100
average	43±65.4	42±67.8	41±75	40.9±69.8

Table 2: Desirability percent of environmental health indexes of villages of Kermanshah Province during 2000 – 2012 years.

	index				
city	Households with sanitary collection and disposal animal waste	sample of drinking water with desirable bacteriological testing (urban)	sample of drinking water with desirable bacteriological testing (rural)	Rural households that have access to safe resources of drinking water	Rural households that have access to public piping network of drinking water
Eslamabad	85	99.6	88.03	99.5	97.6
Paveh	96.5	100	89.3	100	100
Salac –e- babajani	90.9	82.75	80.2	91.97	89.2
Ravansar	49.6	100	78.3	100	98.8
Javanroud	81.3	100	75.8	96.2	96.2
Sarpol – e- zahab	96.3	96.02	79.96	97.9	97.9
Sonqur	61.1	96.57	75.22	98.3	90.1
Harsin	75.6	98.3	80.2	97.7	94.5
Dallahoo	71.4	100	83.15	97.5	94.9
Sahneh	68.6	100	89.5	99.3	97.4
Qasr-e-shirin	83.5	99.02	94.3	96.69	96.6
Kermanshah	78.9	99.9	70.03	93.5	87.06
Kengavar	70.8	100	93.8	99.7	96.6
Gillan-e-gharb	84.7	100	99.1	100	91.9
average	78.2±13.2	98.1±4.6	84.1±8.4	97.7±2.5	95.2±4.1

Tables 3: Desirability percent of environmental health indexes related to provide and distribution food centers in separate urban and rural of Kermanshah Province during 2000-2012

	index			
city	provide and distribution food centers with sanitary criteria(urban)	provide and distribution food centers with sanitary criteria(rural)	Public places with sanitary criteria (urban)	Public places with sanitary criteria (rural)
Islamabad	97.57	92.8	96.1	83.4
Paveh	95.03	90.04	97.5	96
Salac –e- babajani	78.09	60	77.27	77.8
Ravansar	90.1	71.6	77.8	71.5
Javanroud	77.17	35.3	78.9	14.3
Sarpol – e- zahab	97.7	93.28	96.1	80
Sonqur	82.5	58.3	86.05	58.9
Harsin	90.6	75.7	88.9	76
Dallahoo	89.5	85.4	74.2	84.6
Sahneh	81.63	76	80.5	65
Qasr-e-shirin	72	73.07	73.92	66.7
Kermanshah	87.72	71.5	89.77	44.2
Kengavar	94.1	67.5	91.4	67.8
Gillan-e-gharb	96.25	98.3	95.3	60
average	87.9±8.3	74.9±16.9	86±8.9	67.6±20

In terms of hospital waste management, collection and sanitary disposal of wastewater, sanitary laundry and kitchen's environmental health indexes among of province's cities respectively was not significant difference (Pvalue > 0.05).

Also there are significant differences about average desirability of waste rid in villages of province and index of villages with sanitary of toilet (P<0.001). In addition, this subject was accordance about desirability of microbial quality of drinking water (P<0.001). Also, there were not significant differences between the average desirability of microbial quality and residual chlorine in both villages by with and without piping network (P<0.001) and there are significant difference among province's cities related to average desirability of provide and distribution food centers and public places indicators (P<0.001).

Results showed that environmental health indexes related to all of city's hospitals during the study was undesirable, so that, the least desirability of sanitary collection and disposal wastewater system was as to Harsin's hospital and solid waste collection system, sanitary kitchen and laundry of Sahneh's hospital.

This could be due to that hospitals of Harsin and Saheneh cities are old than other hospitals and due to lack of management attention and inadequate budget allocation to resolve of hospital's sanitary problems based on cost in therapy and medical facilities approach,

inadequate staff and orderlies training and etc. This issue is accordance with Askarian study (2001) that showed environmental health indexes in Fars's hospitals are undesirable due to buildings, facilities and equipment timeworn, numerous patients and students, implementation of self-regulation and administrative problems [7]. Also, the study of Sohrabi (2009) in relation to "the status survey of environmental health indexes in hospitals of Ardabil city" indicated that environmental health situation of considered hospitals does not accordance with most existent regulations and criteria; so that 50% of hospitals haven't water storage tank, and residual chlorine was 80% off standard.

Interim storage and final disposal place in all hospitals did not accordance with existing standards. 100% of employee in kitchen had certify of participate in special courses in public health, and 65% had a medical card examination. 50% of hospital laundry in terms of building does not comply with the regulations and in 50% of hospitals non-infectious and infectious clothes were collected and washed separately. Also worst situation was as to the emergency [8]. Also, the study of Almasi showed that in Talaghani public-educational hospital the percent desirability sanitary and safe situation of radiology department, ICU, bedridden, surgery room, landscaping, waste disposal, water supply, kitchen, laundry, laboratory, emergency and sewer system was 61.53%, 65%, 36.1%, 69.5% 90.9%, 19%, 66.7%, 68.2%% 59.4%, 78.8%, 8.3%, 166% respectively. Given that considered different parts in terms of environmental health and safety have undesirability conditions so that 48% of was undesirability situation. Therefore was suggested that in addition to staff training and equipping of hospital, enterprise to systematic plan to evaluate and improve quality of safety and health service [9].

Also, result showed in terms of hospital waste management, collection and disposal of wastewater, sanitary laundry and kitchen was not significant difference among cities of province (Pvalue> 0.05), it means that the environmental health status of province's hospitals have similar conditions relatively. It can be due to the lack of a comprehensive and specific program to reduce undesirability health conditions in these places.

Another environmental health challenges are sanitary animal waste disposal so that average of most and least desirability of this index was as to Paveh and Ravansar cities respectively. Also in terms of sanitary disposal of animal waste there was a significant difference. This could be due to geographical conditions, public culture of people, Council and rural authorities's activity, thriving livestock, using animal waste instead of fertilizer, and etc. Typically, in Paveh city because of the lush mountains, animals over 8 months of the year outside the village (mountain) and practically animal waste is not disposed at the village. Also in this city is greatly reduced the number of livestock animals, so it is easier waste disposal. But in Ravansar city because there are plenty of farmland and livestock (cattle thriving), dispersion of villages, depot and maintenance animal wastes for more than 9 months around a residential area and then transfer it to the ground agriculture, public attitudes and insufficient volition of Council and rural authorities caused the decreasing of this index.

Result showed in terms of desirability of urban and rural water samples, the bacteriological desirability of urban samples was 14% more than rural samples. This can be due to transmission and distribution system, disinfection system, operation and facilities in cities that is more proper of villages, so that except of Salac-e-babagani city, more than 96% of urban sources of province's city had desirable bacteriological quality. The low bacteriological quality can be due to that Salac-e-babagani city regarding access to offices such as water and wastewater company, municipality and health networks, chlorination systems and water quality control laboratory was denied and recently its status has change to city (beforehand has was village). Management of rural drinking water quality that includes quality and quantity management of water resources, management of resource selection, transmission and distribution of water purification in rural areas that properly don't true implementation. Studies have shown that due to design, operation and maintenance problems, over 30% of rural water supply in the overall of country-not even the end of their design-need to revision and reconstruction. Although water supply coverage in the country increased, but the life merge of facility is very low [10].

Results indicated that there are significant differences in terms of desirability of microbial quality among villages (Pvalue <0.001) and the most and least desirability of microbial quality of water samples as to Gilan-e-gharb (99.1%) and Kermanshah (70%) respectively. This matter can be due to geographical conditions, scattered villages with low population, low number of villages covered by water and Wastewater Company, old and worn out transmission and distribution system, lack of adequate and continuous chlorination and lack of resources. In accordance of this result, study of Farsad showed

sanitary indexes were reduced due to considering the high life in most water supply networks, lack of human and financial resources, weakness in laws and poor coordination with judicial organization, and also low knowledge of rural dwellers about benefits of rural development [11].

In terms of access to sanitary resources and a piping network there are significant difference among villages (Pvalue <0.001). This can be due to geographical conditions in terms of impassability and exist of water resources, access to facilities, budget allocation, tracking people and councils, population, distance from the city center, administrative divisions (city antiquity and exist of demarche). So that most desirability of sanitary resources and piping network was as to villages of three cities (Paveh, Ravansar and Gilan-e-gharb) and Paveh city respectively, also least desirability of these indexes was as to villages of Salac-e-babagani and Kermanshah cities respectively. Also, there is significant difference among villages of province's cities in terms of access to sanitary toilets, this difference most affected by popular culture and paying attention to personal hygiene. In addition, budget allocation and dwellers assistance, apply of Hadi project (rural improvement projects) in the villages, distance from the city center and access to sanitary stuff, public education, cooperation of related organizations such as the Housing Foundation and Relief Committee of Imam (two organizations that coverage of poor households), geographical conditions, access to water and etc, can be effective in promotion of this index. Result showed there are significant differences between incumbents of urban and rural centers of provide and distribution of food and public places, Also, the most desirability of sanitary index of provide and distribution of food places in urban and rural areas is as to Sarpol-e-zahab (97.7%) and Gilan-e-gharb (98.3%) cities and the least of desirability of this index is as to Qasr-e Shirin (72%) and Javanrood (35.3%) cities respectively.

Results indicated most desirability of sanitary index of public places in urban and rural is as to Paveh city (97.5 and 96 %) and the least of desirability of this index is as to Dallahoo (74.2%) and Javanrood (14.3 %) cities. This matter could be due to various factors such as public culture, building status, control and continuous monitoring of places, unions educations and law enforcement, lack of manpower, lack of proper planning by health authorities, access to facilities, use of specialized health environmental personnel (in rural health centers are used environmental health personnel frequently) and cooperation of other organs such as the judiciary, police, municipalities, endowments department with health centers.

The study of Mostafaiee about "Problems and Challenges in monitoring and controlling of environmental health inspectors about public places and provide and distribution of food centers in Kurdistan Province in 2008" showed that weak administrative systems and lack of coordination between health ministry and police dealing with violators and low income of inspectors are as important barriers and challenges, so health inspectors police plan and knowledge promotion of environmental health inspectors, increase of incumbents education and moral and material support have been important role to resolve of the these challenges in Mostafaye *et al.* [12].

The results of Jahed Khaniki study about "sanitary indexes of provide and distribution of food" showed the situation of impart of valid health card, sanitary solid waste disposal, lavatory and bathrooms, exist of refrigerators and personnel sensation has need to improvement [13]. Also, the study of Sadeghi about "environmental health indexes of Shrekurd city" indicated that because of cultural and economic problems caused by migration, lack of manpower and lack of public education, near the 16.7% of places has desirable index [14]. About public places, the study of Shabankhani about " environmental health indexes of villages of Mazendaran" indicated that improper condition of school's courtyard can be imposing a lot of side effects on students. No separate of lavatory and mug's taps and widespread use of non-standard taps have suitable condition for transmission of many diseases, also false junctions, false piping and sharing valves has major reasons that improper use of safe drinking water [15]. Study of Farzinnia about "survey of environmental health indicators in hotels and residential centers (public place) of Qom city" demonstrated that 35.5%, 54.8% and 9.7% of places have sanitary, improvement, and undesirable condition respectively .also there was a significant relationship between the degree of chief residence with health card of staff (Pvalue <0.042) that indicate the training has a positive effect on health indexes [16].

CONCLUSION

According to the results, however the establishment of evaluation of environmental health indexes system that have significantly increased in recent years, but the status of environmental health challenges are improper overall

of province. Therefore, to improve of health indexes (reduce of undesirable challenges) requires provide and implementation of comprehensive and systematic program and public education as an important tools in promotion of health indexes to be institutionalize. Also, external and internal cooperation of related organizations is important parameters to reduce of undesirable challenges.

ACKNOWLEDGEMENTS

Authors wish to thank of health assistance of Kermanshah University of Medical Science Staff for their cooperation in use of health information resources.

REFRENCES

1. Masoombaigi, H. and A. Ahmadizad, 2008. The sanitation of military sites. Journal of Development of education office, 11(41): 16-24.
2. Yousefi, H.A and M. Shirani, 2011. Integrated management systems of health, safety and environment and sustainable development. Proceedings of the 5th National Conference and Exhibitions on Environmental Engineering. Tehran Iran.
3. Health Organization, Core Health Indicators, World health statistics 2002 available from: http: // www. Who.int .
4. Yousefi, H.A., 2010. Integrated management systems in health, safety and environment. Tehran, Iran: Fanavaran.
5. World Health Organization Eastern Mediterranean Office, 2000. Health Education through religion series. Geneva Sewtzerland: WHO-EMR.
6. Lotfi, F.B., S. Sarkari, A. Hirazi Nezhad, A. Mosavi, K. Hojati, A. Sadat, 2008. Evaluation of environmental health factors of pools in Yasouj during 2005-2006 yeaars. 12th National Conference and Exhibitions on Environmental Engineering. Beheshty University of Medical Science.
7. Asgarian, M., 2001. Survey on Environmental Health Situation in Fars Province Hospital, 7(27): 31-38.
8. Sohrabiaval, J., A. Azizi, M. Shaker, S.N. Ataye, A. Alipanah, M. Alighadri, 2009. The survey of environmental health indicators status in hospitals of Ardabil city. 12th National Conference on science researching-students of Environmental Health, Ardabil University of Medical Science.
9 Almasi, A. and B. Karamimatin, 2000. The survey of qualitative indicators of health and safety in Taleghani General hospitals-Kermanshah University of Medical Sciences in 1999. 4th National Conference and Exhibitions on Environmental Engineering. Yazd University of Medical Science.
10. Nourisepehr, M, 2008. The management of water supply in villages. Journal of geographical researches, 85:140-157.
11. Faesad, J., 2008. The survey of environmental health indicators at the country level. 12th National Conference and Exhibitions on Environmental Engineering. Beheshty University of Medical Science.
12. Mostafaye, F. and F. Samadnezhad, G. Parndan, 2008. Problems and Challenges of Environmental Health Inspectors in Monitoring and control of public places and the sale provide and distribution centers of food in Kurdistan province during 2007 year. 12 th National Conference and Exhibitions on Environmental Engineering. Beheshty Universityof Medical Science.
13. Jahed, G.H. and A.H. Mahvi, 2006. A Study on Bam Suppling Centers of Food and Beverage after Earthquake. Oloum Va Technology Mohite Zist, 8(2): 59-67.
14. Sadeghi, M., 1996. A Study on ShahreKord Environmental Health. Msc Thesis. Tehran University of Medical Sciences and Health Services, pp: 184-187.
15. SHabankhani, B. and F. Abdollahi, 2002. The survey of environmental health indicators of schools (educations spaces) in Mazendaran villages (2002). Journal of mazendaran university of medical science, 13(14): 98-100.
16. Farzinnia, B. and M. Khazaye, 2007. The survey of environmental health indicators of Hotels and rest houses in Qom city in 2005. J of Qom medical of health science, 2(4): 21-38.